

Steam Store Data Analysis - Log Report

Steam Store App

The leading global platform for video game producers to sell and market their games online.

Valve

Company that owns the Steam Store App.

Dataset Sources:

- **Uncleaned:** [Steam Store Raw Data](#)
- **Cleaned:** [Steam Store Games](#)

Steam Spy

A website that tracks and analyzes Steam game data, providing insights into game ownership and playtime statistics. It uses the Steam API to gather information from user profiles, which is then aggregated and presented in a user-friendly way.

There are two versions of this dataset: cleaned and uncleaned. I chose to work with the uncleaned version to improve my data cleaning skills and to format the clean version.

Data Analysis Table of Contents

This log outlines the process of solving a business task using data analytics:

- **Ask:** Define the business task and key questions.
- **Prepare:** Gather the necessary data.
- **Process:** Clean and transform the data.
- **Analyze:** Explore the data to generate insights.
- **Share:** Create visualizations and share findings.
- **Act:** Apply insights to solve the business problem.

Programs Used

- **SQL:** To import, process, clean, and analyze the data.
 - **Excel:** For quick visualizations and reference.
 - **Tableau:** To visualize insights and support recommendations.
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Ask: Business Task

Objective:

Analyze consumer trends and patterns on the Steam Store app to improve marketing strategies and increase overall sales.

Stakeholders:

- Gabe Logan – Founder of Steam
- Valve Corporation Marketing Department
- Valve Marketing Analytics Team
- **Audience:** Global Steam users and gamers

SMART Questions:

- What genres of video games are most popular and why?
- Do cheaper games attract more owners?
- How do genres compare in terms of ownership and playtime?
- Does playtime correlate with positive ratings?
- Do multiplayer games have higher sales than single-player games?
- Does release timing affect sales?

- How does price correlate with ownership?
 - What are common trends among the top 10 games on Steam?
 - What do the top concurrent user games have in common?
 - Which category has the most owners?
 - Are there optimal price points for maximizing ownership?
 - Do games with more concurrent users or higher total ratings earn more revenue?
 - Are certain genres more likely to have higher positive ratings?
 - Do specific genres have higher average playtime (e.g., RPGs vs. casual games)?
 - Does a game's age affect its average playtime?
 - Which developers have the highest number of owners?
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Prepare: Import Steam Datasets

To BigQuery SQL:

- [Steam Store Raw Data \(uncleaned\)](#)
 - [Steam Store Cleaned Data](#)
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Process: Steam Data

Clean and Transform:

- Fixed data types
- Removed nulls and duplicates

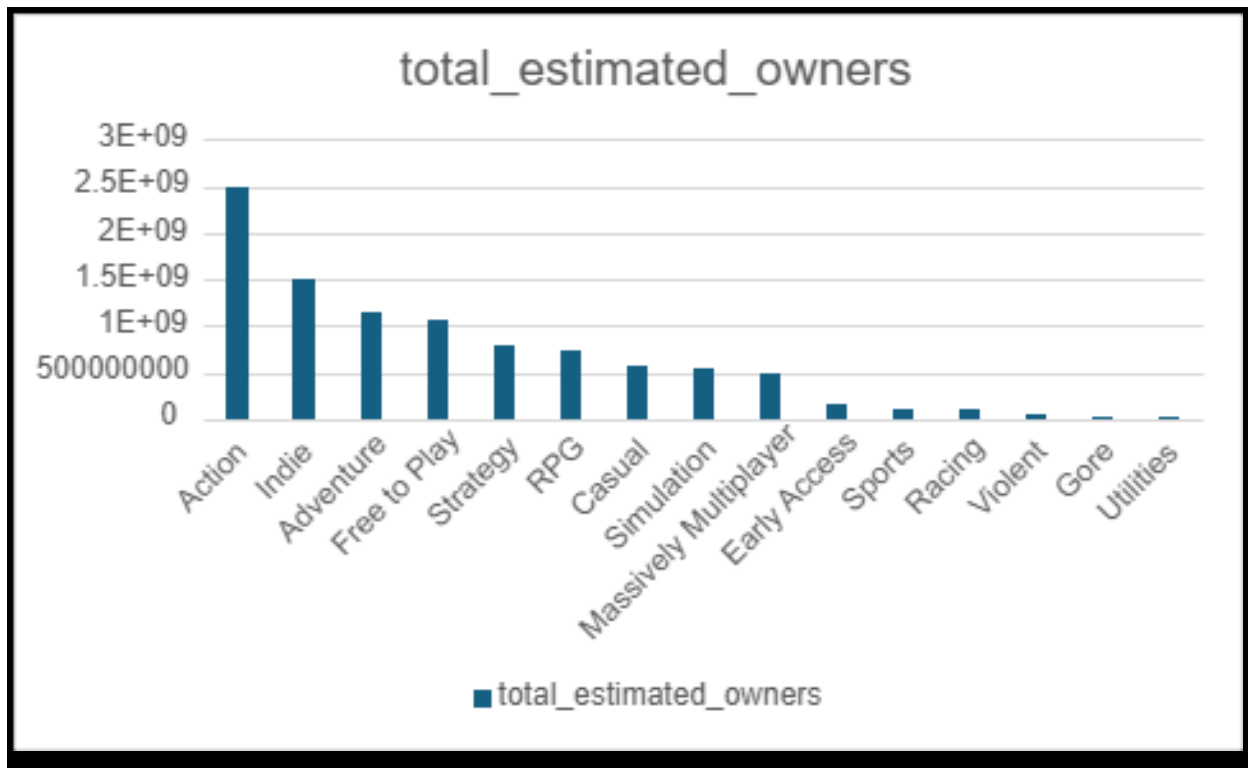
- Eliminated irrelevant columns
All changes were made in BigQuery SQL.
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Analyze: Insights (BigQuery SQL)

Most Popular Genres by Ownership

-- Split genres and sum owners per genre

```
WITH genre_split AS (  
  SELECT  
    name,  
    estimated_owners,  
    TRIM(genre) AS genre  
  FROM `jasons-sandbox-463122.steam_data.cleaned_steamspy`,  
  UNNEST(SPLIT(genres, ';')) AS genre  
)  
  
SELECT  
  genre,  
  COUNT(*) AS number_of_games,  
  SUM(estimated_owners) AS total_estimated_owners,  
  ROUND(AVG(estimated_owners)) AS avg_estimated_owners  
FROM genre_split  
WHERE genre IS NOT NULL AND genre != ''  
GROUP BY genre  
ORDER BY total_estimated_owners DESC  
LIMIT 15;
```



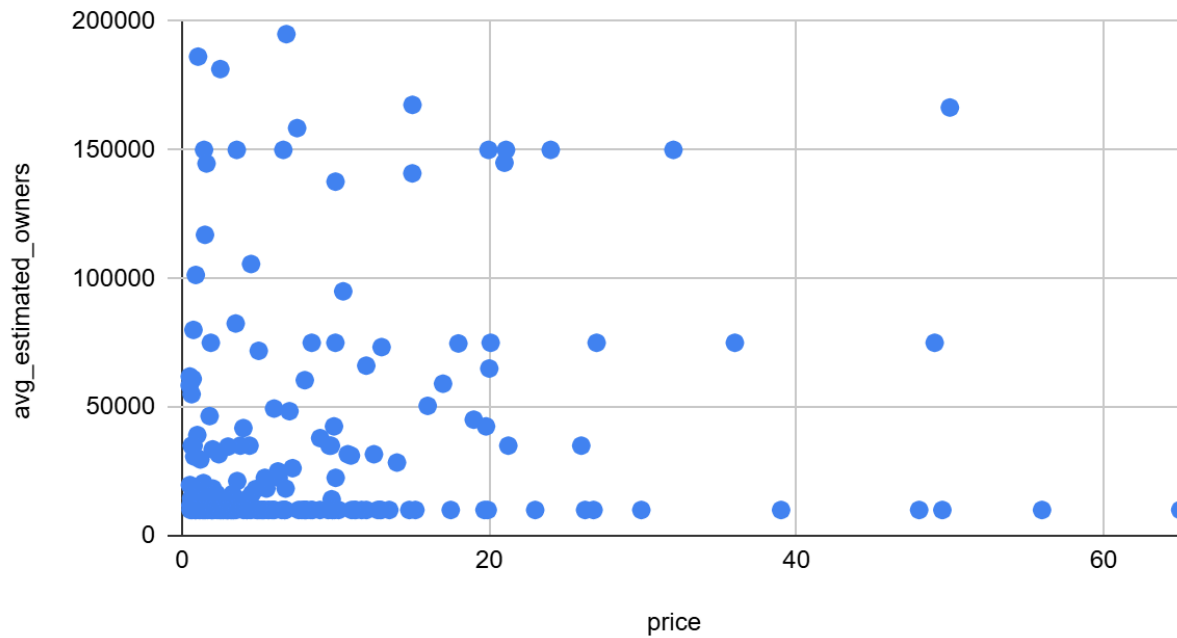
Insight: Action, Indie, Free-to-Play, and Strategy are the most popular genres by estimated ownership.

Do Cheaper Games Get More Owners?

-- Correlation between price and ownership

```
SELECT
    ROUND(price, 2) AS price,
    COUNT(*) AS num_of_games,
    ROUND(AVG(estimated_owners)) AS avg_estimated_owners
FROM `jasons-sandbox-463122.steam_data.cleaned_steamspy`
WHERE
    estimated_owners IS NOT NULL
    AND price IS NOT NULL
GROUP BY
    price
ORDER BY
    price ASC;
```

Owners vs Price



Insight: Games with lower prices don't directly correlate with higher estimated ownership.

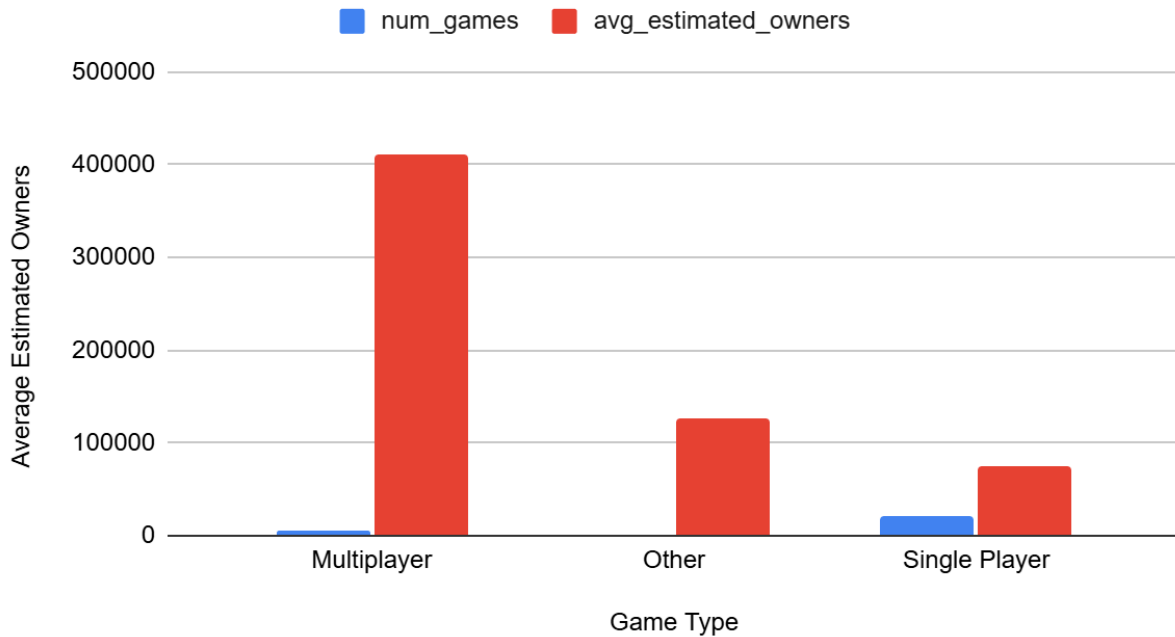
Multiplayer vs. Single Player: Ownership

-- Categorizing by game type

```
SELECT
  CASE
    WHEN categories LIKE '%Multi-player%' OR categories LIKE '%Online Multi-Player%'
  THEN 'Multiplayer'
    WHEN categories LIKE '%Single-player%' THEN 'Single Player'
    ELSE 'Other'
  END AS game_type,
  COUNT(*) AS num_games,
  ROUND(AVG(estimated_owners)) AS avg_estimated_owners
FROM
  `jasons-sandbox-463122.steam_data.cleaned_steamspy_V2`
GROUP BY
  game_type
```

```
ORDER BY
avg_estimated_owners DESC;
```

Multiplayer VS Single Player Owners



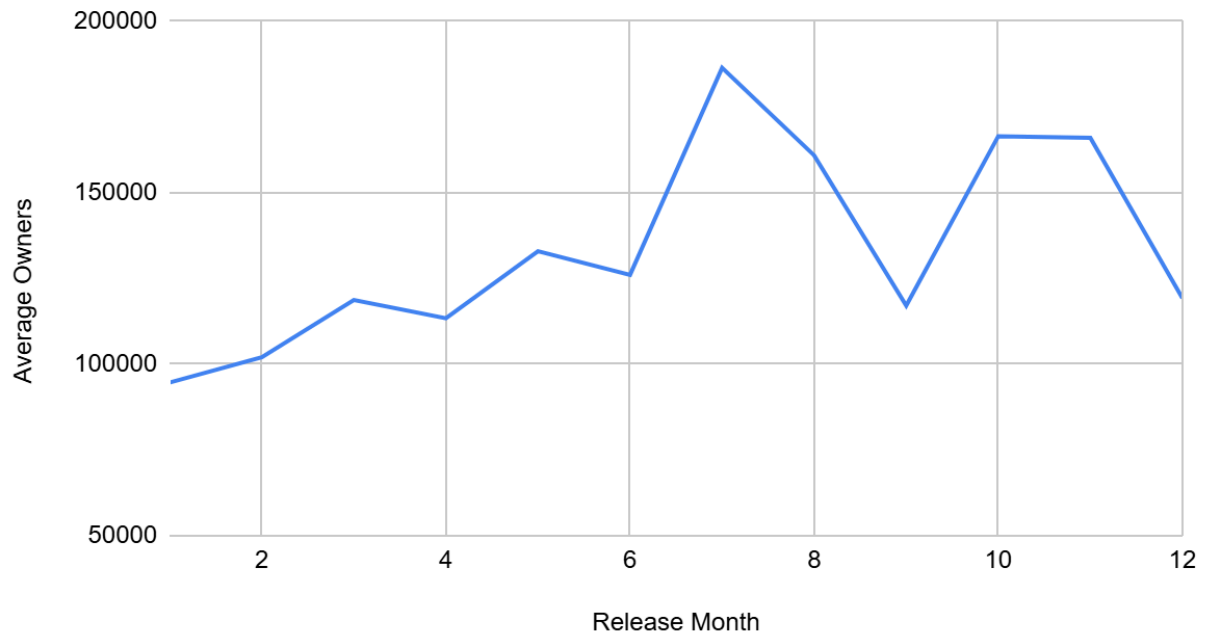
Insight: Multiplayer games have significantly higher average ownership—about **5x more**—despite having a quarter of the number of games compared to single-player titles.

Does Release Timing Affect Sales?

-- Avg ownership by release month

```
SELECT
  EXTRACT(MONTH FROM release_date) AS release_month,
  COUNT(*) AS num_games,
  ROUND(AVG(estimated_owners)) AS avg_estimated_owners
FROM
  `jasons-sandbox-463122.steam_data.cleaned_steamspy_V2`
GROUP BY
  release_month
ORDER BY
  release_month;
```

Monthly Sales



Insight: Sales spike in **July**, followed by **October** and **November**, possibly due to summer breaks and holiday seasons. Discounting during low sales periods could help boost sales.

Top 10 Games by Ownership

-- Most owned titles

```
SELECT
    name,
    release_date,
    developer,
    platforms,
    categories,
    genres,
    steamspy_tags,
    positive_ratings,
    negative_ratings,
    percent_positive,
    estimated_owners,
    price,
    estimated_revenue,
```



```

average_playtime,
concurrent_users
FROM `jasons-sandbox-463122.steam_data.cleaned_steamspy_V2`
ORDER BY estimated_owners DESC
LIMIT 10;

```

Name	Concurrent Users	Developer	Platforms	Genres	Price
Dota 2	742725	valve	windows mac linux	Action Free to Play Strategy	0
Player Unknown's Battlegrounds	733670	pubg corporation	windows	Action Adventure Massively Multiplayer	29.99
Counter-Strike: Global Offensive	507652	valve, hidden path entertainment	windows mac linux	Action Free to Play	0
Tom Clancy's Rainbow Six Siege	75484	ubisoft montreal	windows	Action	19.99
Warframe	64447	digital extremes	windows	Action Free to Play	0

Insight: Common Traits:

- 3 developed by Valve
- All support Windows
- All have multiplayer
- All are action games
- Most are **free to play**, except **PUBG** at \$29.99

PUBG had only 50% positive ratings but still ranked 3rd—suggesting other factors like gameplay and engagement matter.

Top 10 Concurrent Users

-- Games with most active users

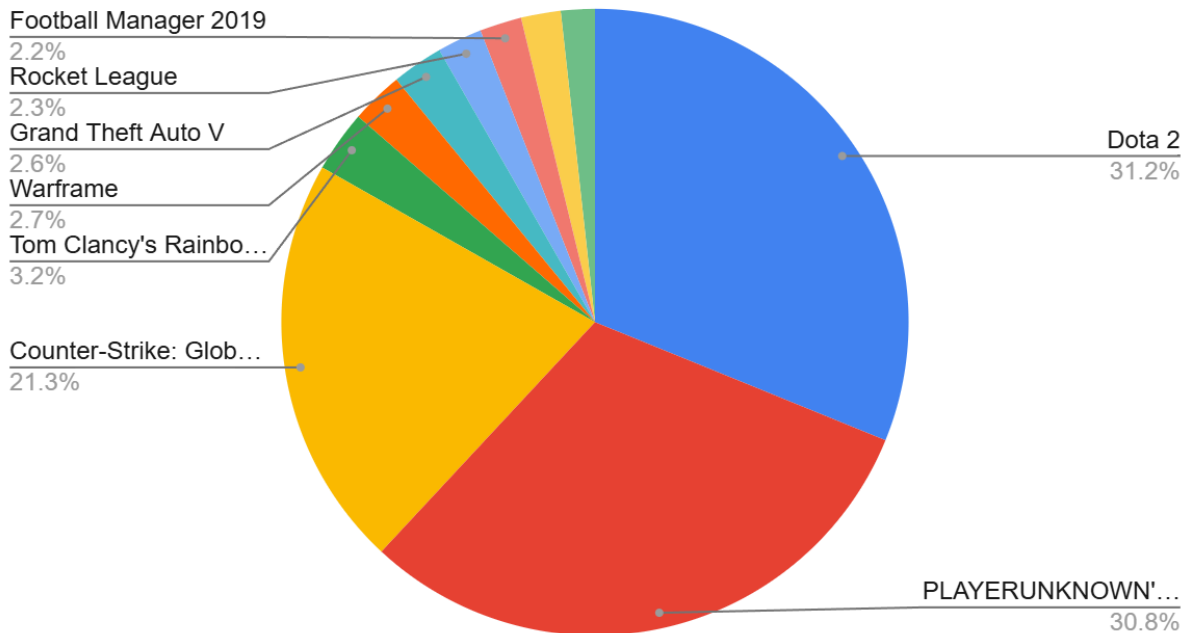
```

SELECT
    name,
    concurrent_users AS `concurrent users`,
    developer,
    platforms,
    genres,
    price,
FROM `jasons-sandbox-463122.steam_data.cleaned_steamspy_V2`

ORDER BY concurrent_users DESC
LIMIT 5;

```

concurrent_users



Insight: Focus marketing efforts (e.g., DLCs) on high concurrent games. These users are actively engaged and more likely to make purchases.

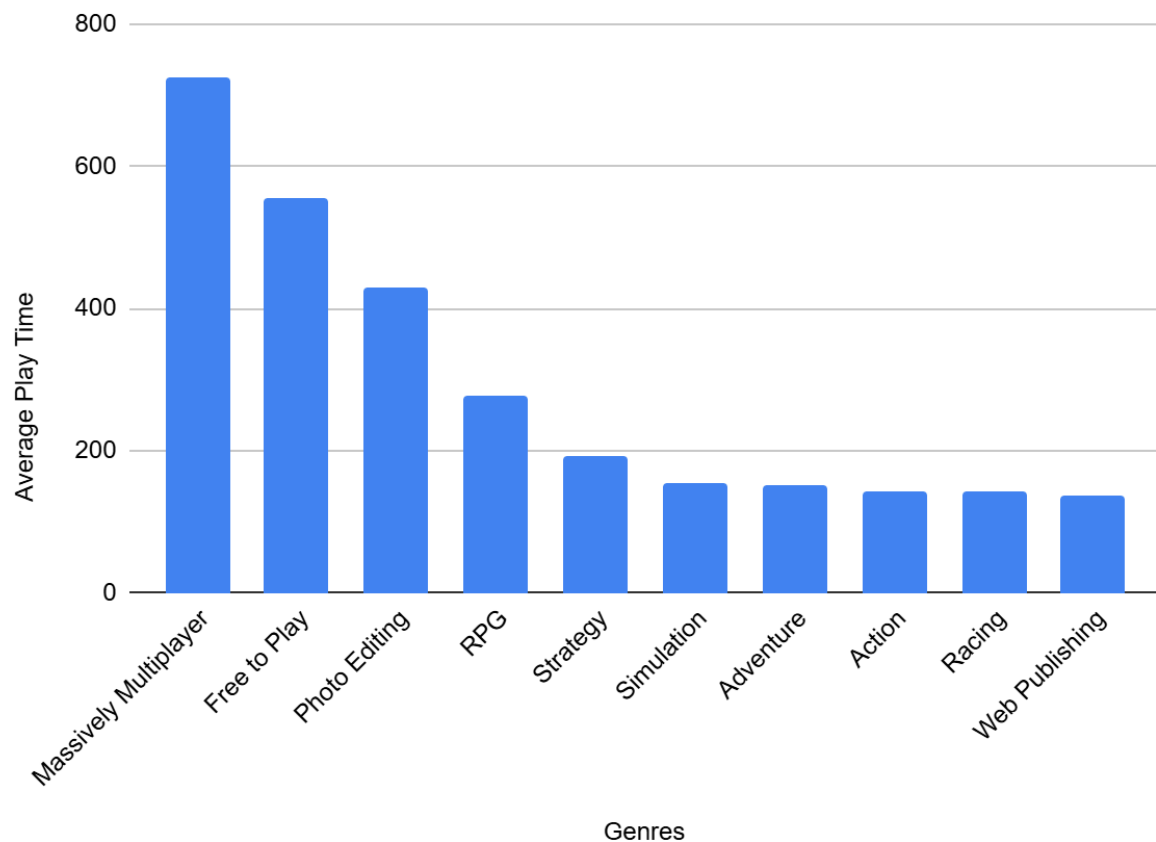
Do Certain Genres Have Higher Average Playtime?

-- Average playtime per genre

```
SELECT
  genre AS individual_genre,
  ROUND(AVG(average_playtime), 2) AS avg_playtime_minutes
FROM (
  SELECT
    TRIM(genre) AS genre,
    average_playtime
  FROM `jasons-sandbox-463122.steam_data.cleaned_steamspy_V2`,
  UNNEST(SPLIT(genres, ';')) AS genre
  WHERE
    genres IS NOT NULL AND
    average_playtime IS NOT NULL
)
```

```
GROUP BY individual_genre
ORDER BY avg_playtime_minutes DESC
LIMIT 10;
```

Average Minutes Play Times per Genre



Insight: Genres like **MMO**, **Free to Play**, and surprisingly, **Photo Editing Software** have the highest playtime, indicating opportunities for marketing and in-game purchases.

Top Developers by Ownership

-- Most popular developers

```
SELECT
    name,
    developer,
    estimated_owners
FROM `jasons-sandbox-463122.steam_data.cleaned_steamspy_V2`
```

```
ORDER BY estimated_owners DESC
LIMIT 10;
```

Insight: Valve dominates unsurprisingly given it owns the Steam platform. PUBG Corp also holds strong ownership numbers.

Top Games Over 10 Years Old

-- Legacy titles with high engagement

```
SELECT
  name,
  release_date,
  concurrent_users,
  total_ratings,
  average_playtime,
  genres
FROM
  `jasons-sandbox-463122.steam_data.cleaned_steamspy_V2`
WHERE
  release_date <= DATE_SUB(CURRENT_DATE(), INTERVAL 10 YEAR)
  AND concurrent_users IS NOT NULL
ORDER BY
  concurrent_users DESC
LIMIT 10;
```

name	release_date	concurrent_users	total_ratings	average_playtime	genres
Dota 2	2013-07-09	742725	1005586	23944	Action; Free to Play; Strategy
Counter-Strike: Global Offensive	2012-08-21	507652	3046717	22494	Action; Free to Play
Warframe	2013-03-25	64447	246809	5845	Action; Free to Play
Grand Theft Auto V	2015-04-13	63112	468369	9837	Action; Adventure
Rocket League	2015-07-07	55112	264377	5825	Action; Indie; Racing; Sports

Insight: Older games like Dota 2, CS:GO, and Warframe remain highly popular. These long-standing action titles could be repackaged or promoted for longevity and increased reach.

Highest Positively Rated Genres

-- Avg percent positive by genre

```
SELECT
  genre AS individual_genre,
  ROUND(AVG(percent_positive), 2) AS avg_percent_positive
FROM
  `jasons-sandbox-463122.steam_data.cleaned_steamspy_V2`,
  UNNEST(SPLIT(genres, ';')) AS genre
WHERE
  genres IS NOT NULL
  AND percent_positive IS NOT NULL
GROUP BY
  individual_genre
ORDER BY
  avg_percent_positive DESC;
```

individual_genre	avg_percent_positive
Software Training	0.97
Web Publishing	0.91
Design & Illustration	0.78
Nudity	0.76
RPG	0.75
Adventure	0.74
Sexual Content	0.74
Animation & Modeling	0.74
Design & Illustration	0.74
Education	0.74
Web Publishing	0.74
Game Development	0.74
Action	0.72
Indie	0.72

Indie	0.72
Free to Play	0.71
Casual	0.71
RPG	0.71
Casual	0.71
Animation & Modeling	0.71

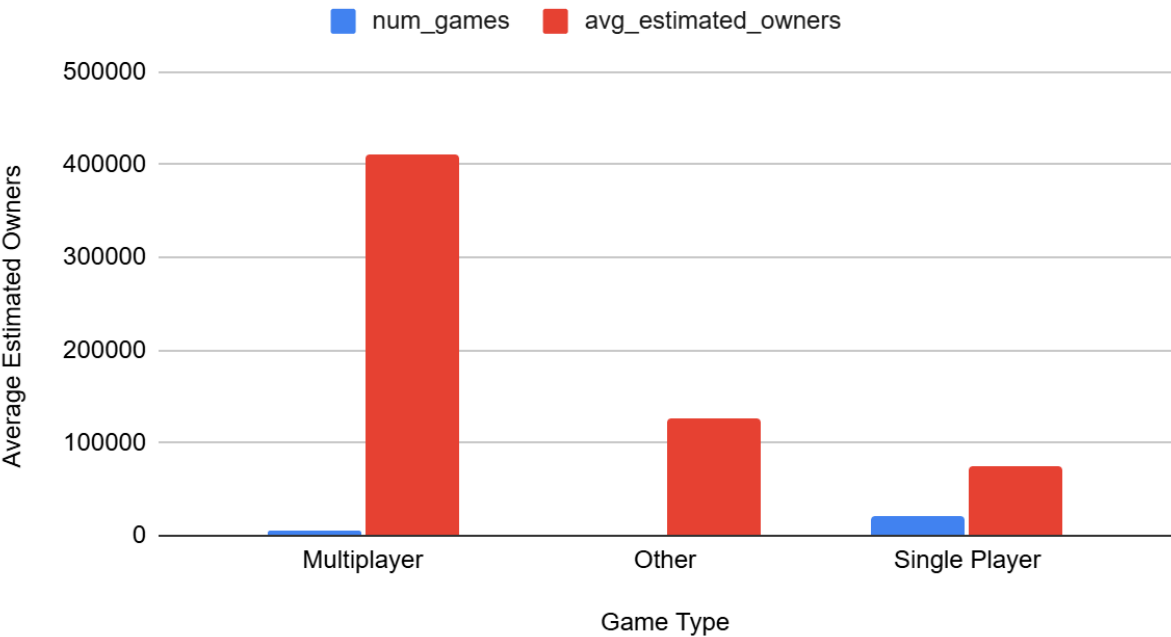
Insight: Surprisingly, **non-game software** like **training programs**, **web publishing**, and **design tools** scored the highest. Steam should consider marketing these products more heavily.

Share: Key Takeaways

Multiplayer vs. Single Player

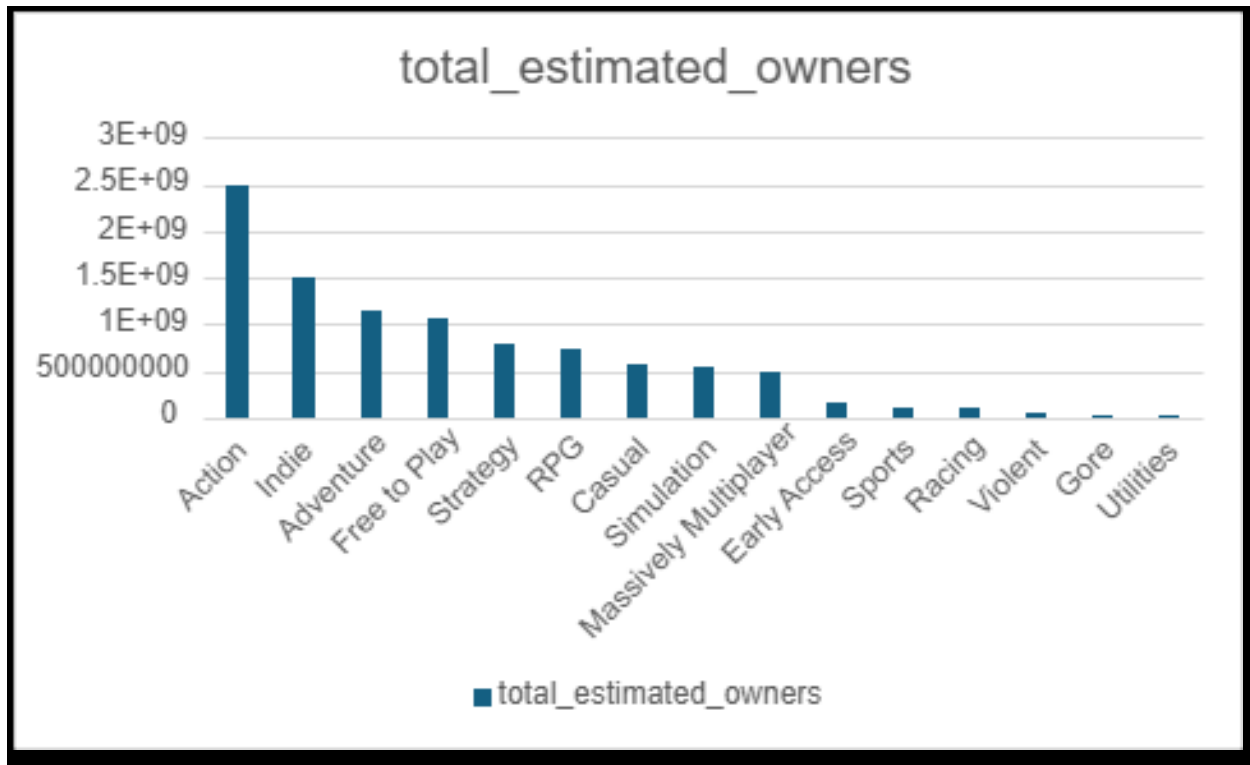
Market multiplayer games more actively. They offer social connectivity, which may contribute to higher engagement and ownership.

Multiplayer VS Single Player Owners



Most Popular Genres

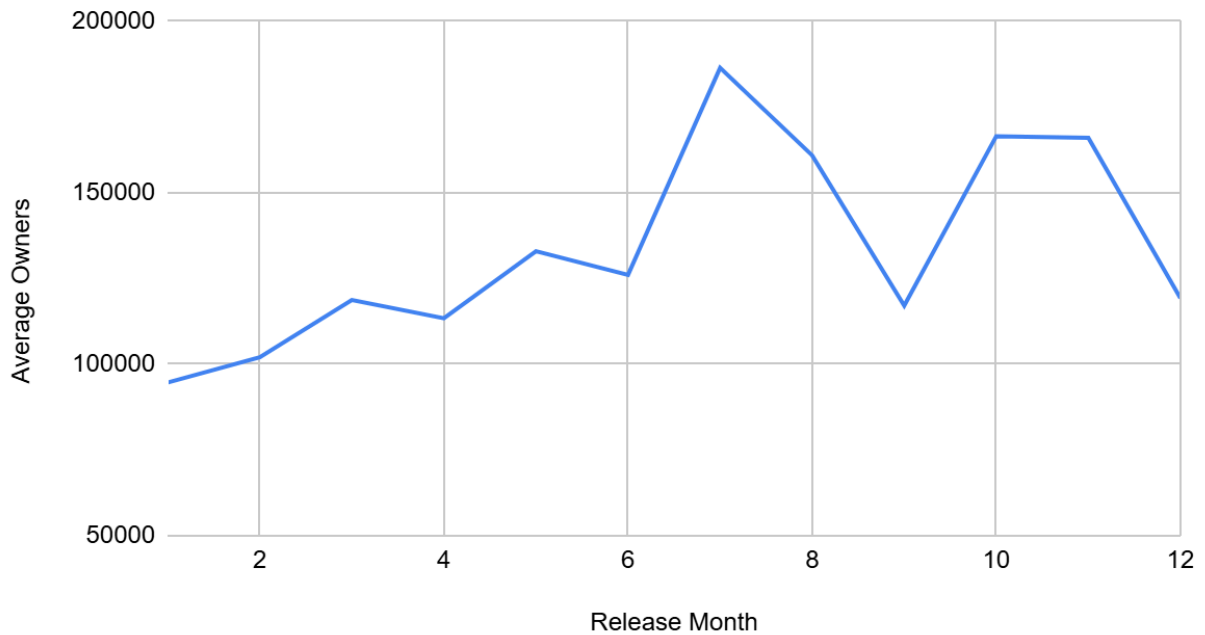
Focus on **Action**, **Indie**, **Adventure**, and **Free to Play**. These genres dominate ownership numbers and are the most impactful for campaign strategies.



Release Timing

- **Peak months:** July, October, November
- Consider seasonal campaigns and discounts
- Launch themed promotions during holidays (e.g., Halloween)

Monthly Sales



Top Game Traits

- Multiplayer
- Free to play
- Action-oriented
- Developed by Valve

Name	Concurrent Users	Developer	Platforms	Genres	Price
Dota 2	742725	valve	windows mac linux	Action Free to Play Strategy	0
Player Unknown's Battlegrounds	733670	pubg corporation	windows	Action Adventure Massively Multiplayer	29.99
Counter-Strike: Global Offensive	507652	valve, hidden path entertainment	windows mac linux	Action Free to Play	0
Tom Clancy's Rainbow Six Siege	75484	ubisoft montreal	windows	Action	19.99
Warframe	64447	digital extremes	windows	Action Free to Play	0

Recommendation:

Bundle DLCs and updates for these games to increase player investment and purchases.

Non-Game Categories

Software Training, Web Publishing, and Design are top-rated by users. These non-gaming categories present a strong opportunity for diversified marketing campaigns.

individual_genre	avg_percent_positive
Software Training	0.97
Web Publishing	0.91
Design & Illustration	0.78
Nudity	0.76
RPG	0.75
Adventure	0.74
Sexual Content	0.74
Animation & Modeling	0.74
Design & Illustration	0.74
Education	0.74
Web Publishing	0.74
Game Development	0.74
Action	0.72
Indie	0.72
Indie	0.72
Free to Play	0.71
Casual	0.71
RPG	0.71
Casual	0.71
Animation & Modeling	0.71

Act: Conclusions

To run a successful marketing campaign on Steam:

1. **Target High-Performing Genres:**
Action, Indie, Adventure, and Free to Play are proven top performers.
2. **Capitalize on Multiplayer:**
Multiplayer games show significantly higher engagement. Market the social experience—community, connectivity, and in-game collaboration.

3. **Promote Non-Gaming Tools:**

Don't overlook the growing interest in software products.

4. **Time Your Campaigns Strategically:**

Focus advertising around **July, October, and November**, with holiday-themed sales and promotions.

5. **Highlight Game Longevity:**

Games older than 10 years still dominate. Highlight their endurance in campaigns and tie them to current trends or remastered versions.

6. **Push Engagement with DLCs:**

Players active in top games are primed for monetization through DLCs, season passes, or expansions.

Marketing Campaign Final Thoughts

To run a successful marketing campaign on Steam and increase overall sales, we recommend focusing on the platform's leading genres—Action, Indie, Adventure, and Free-to-Play games. These categories consistently demonstrate high popularity and engagement. Action games, in particular, have remained dominant across the years and continue to perform well. Indie games, while niche, have developed a loyal following among Steam users and offer unique creative experiences. Adventure games provide a sense of exploration and freedom that keeps players engaged. Free-to-Play titles remove the barrier of entry and are more likely to attract new users who may continue playing if the gameplay is compelling.

Marketing strategies should also emphasize games that support multiplayer, as these have proven to be significantly more popular than single-player games, despite being fewer in number. The social and community-driven nature of multiplayer experiences encourages longer engagement, and marketing should highlight opportunities for players to connect, interact, and build communities within these games. Promoting features such as co-op gameplay, online chat, and shared hubs can further increase appeal and retention.

Additionally, there is a valuable opportunity to promote high-performing non-game applications such as software training tools, web publishing platforms, and design and illustration programs. These applications receive high user satisfaction and can expand Steam's market beyond traditional gaming audiences. Including them in marketing efforts can diversify revenue streams and attract a broader demographic.

Seasonality should also be considered when planning campaigns. Data indicates that July, October, and November are peak periods for sales. Campaigns launched in early summer can leverage the school break to target younger audiences with time to explore new games. In the fall, themed promotions—particularly around Halloween—can focus on horror or spooky indie Free-to-Play titles, which align well with the seasonal demand.

Finally, popular titles that already perform well should be supported with downloadable content (DLC) to increase revenue and extend the lifecycle of each product. This is especially true for games developed by Valve and other top-performing publishers whose games show high engagement and visibility.

By combining strategic genre focus, seasonal marketing, social gaming emphasis, and non-gaming product promotion, campaigns can optimize visibility, engagement, and ultimately, sales performance across the Steam platform.